

providing a semiconductor structure having a base layer, an insulation layer, and a monocrystalline silicon layer;

introducing a passivating substance X between the insulation layer and the monocrystalline silicon layer during a fabrication thereof, by means of the following steps:

providing two silicon semiconductor substrates;

oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates;

selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates;

joining the two silicon semiconductor substrates by contacting the two oxide layers; and

partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer;

and

*b1
b2*

heat-treating the semiconductor structure with the passivating substance X, thereby causing the passivating substance to diffuse into an interface between the insulation layer and the monocrystalline silicon layer.

*b1
b2*

Claim 11 (amended). The method according to claim 10, wherein comprises forming a covering oxide layer on the monocrystalline silicon layer.

*b1
b2*

Claim 12 (twice amended). The method according to claim 10, which comprises patterning the monocrystalline silicon layer by etching away regions thereof down to an underlying insulation layer.

*b1
b2*

Claim 15 (amended). The method according to claim 10, which comprises:

*b1
b2*

doping the monocrystalline silicon layer differently region by region by means of ion implantation; and

performing the doping step after the step of introducing the passivating substance X and the heat-treating step.